REMARKS

This amendment and remarks are in response to the Office Action mailed January 4, 2007 (the "Office Action"). Applicants have amended claims 1, 6-8, 11, and 14, added new claims 32-37, and canceled claims 2, 4, 5, 9, 10, 12, 13, 15, 16, and 19 in the present amendment. Upon entry of this amendment, claims 1, 3, 6-8, 11, 14, 17, 18, and 32-37 will be pending and under examination.

Claim 1 has been amended to require that the composition include nucleotide sequences encoding glycoprotein B (gB) or an antigenic fragment thereof, and a glycoprotein complex II (gcII) polypeptide or an antigenic fragment thereof. These amendments are supported, e.g., by original claims 4 and 5. Claims 1 and 7 have been amended to delete language requiring that sequences encoding the CMV polypeptides be on different nucleic acids. These amendments are supported, e.g., by the original claims and by language in the specification at page 3, lines 4-7. Claims 1 and 7 have also been amended to specify that the nucleic acid molecules include DNA plasmids. These amendments are supported, e.g., by original claim 2 and by the specification at page 1, lines 24-25. Claim 7 has been amended to require that the composition include sequences encoding gB or an antigenic fragment thereof, and a polypeptide selected from glycoprotein M (gM), glycoprotein N (gN), and antigenic fragments thereof. These amendments are supported, e.g., by original claim 15. Claim 8 has been amended to delete "glycoprotein complex II" and to refer instead to gM, gN, and antigenic fragments thereof. This amendment is supported, e.g., by original claim 11. Claim 14 has been amended to depend from claim 11 and to replace "gcIII" with "two or more of gH, gL, gO." This amendment is supported, e.g., by original claim 16. Other claim amendments are for clarity.

New claims 32 and 33 depend from claims 1 and 7, respectively, and specify that the compositions include a plurality of sets of nucleic acid molecules, each encoding the different CMV polypeptide. These amendments are supported by claims 1 and 7 as originally filed. New claims 34 and 36 depend from claims 1 and 7, respectively, and specify that the gB or antigenic fragment thereof is a truncated form of gB lacking a carboxy-terminal transmembrane domain. These amendments are supported by the specification, e.g., at page 8, lines 8-10. New claims 35

and 37 depend from claims 34 and 36, respectively, and specify that the nucleic acid sequence encoding the truncated gB express it in association with a tissue plasminogen activator leader sequence. These amendments are supported, e.g., at page 8, lines 10-11. No new matter has been added.

35 U.S.C. § 102

Claims 1-12 and 17-19 were rejected as allegedly anticipated by Gonczol et al. (U.S. Pat. 6,448,389; "the '389 patent").[1] Applicants traverse this rejection for the following reason.

The Office Action states (at page 2):

> Gonczol et al. teaches a composition comprising a plurality of sets of nucleic acid molecules, encoding a different type of cytomegalovirus polypeptide, and each molecule of a set encoding the same type of CMV polypeptide, wherein [sic] a plasmid pTet-gB, containing the portion of the HCMV genome (UL55) encoding gB. ... As such Gonczol et al. anticipates the claimed invention.

Applicants respectfully disagree. Claim 1, as amended, is directed to a composition including nucleic acid molecules encoding a CMV polypeptide that induces a cell-mediated immune response, a CMV glycoprotein B or an antigenic fragment thereof, and a glycoprotein complex II (gcII) polypeptide or an antigenic fragment thereof. The '389 patent does not disclose nucleic acid molecules encoding this combination of polypeptides. Specifically, the '389 patent does not disclose any of the gcII polypeptides (i.e., gM and gN). The Office Action acknowledged that the '389 patent "differs from the claimed invention by not teaching a composition wherein the polypeptides that induce the neutralizing antibody response comprise gcII or gcIII or their combinations or their antigenic fragments thereof" (see page 6). Therefore, the '389 patent does not anticipate claim 1 or its dependent claims.

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[1] Applicants note that the '389 patent is not citable as prior art under 35 U.S.C. § 102(b). A reference is citable as prior art under § 102(b) if it is described in a printed publication more than one year prior to the date for application for patent in the U.S. The publication of the '389 patent occurred when it issued on September 10, 2002. The present application claims and is entitled to the benefit of priority of U.S.S.N 60/450,818, filed on February 27, 2003. Because the '389 patent was not published more than one year prior to the date of application for the present application, it is not citable as prior art under 35 U.S.C § 102(b), but under § 102(a). The '389 patent was filed as a national stage application of PCT/US97/06866 published as WO97/40165 on October 30, 1997, and is thus § 102(b) prior art.

Claim 7 is directed to a composition including nucleic acid molecules encoding HCMV gB or an antigenic fragment thereof, and a polypeptide selected from gM, gN, or antigenic fragments thereof. The '389 patent does not disclose nucleic acid molecules that encode gM, gN, or antigenic fragments thereof. Therefore the '389 patent does not anticipate claim 7 or its dependent claims. Applicants respectfully request withdrawal of the rejection of claims 1, 3, 6-8, 11, 14, and 17, and 18 on this ground.[2]

35 U.S.C. § 103

Claims 1-19 were rejected as allegedly obvious over the '389 patent in view of Paoletti et al. (U.S. Pat. No. 6,267,965; "the '965 patent"). The Office Action states (at pages 6-7):

> Gonczol et al. differs from the claimed invention by not teaching a composition wherein the polypeptides that induce the neutralizing antibody response comprise gcII or gcIII or their combinations or their antigenic fragments thereof.
>
> However...Paoletti et al. teaches the role of individual HCMV proteins in protective immunity is unclear. Three immunologically distinct families of glycoproteins associated with the HCMV envelope have been described [sic] gCI (gp55 and gp93-130); gCII (gp47-52); and gCIII (gp85-p145). Neutralization of HCMV has been demonstrated in vitro with antibodies specific for each of these glycoprotein families...Paoletti suggests it is an object of this invention to provide a method for expressing a gene product in a cell cultured in vitro using a modified recombinant virus or modified vector having an increased level of safety. As such, Paoletti et al. provide sufficient motivation for one of ordinary skill in the art to apply the plasmid technology of Gonczol to induce the neutralizing antibody response comprise [sic] gcII or gcIII or their combinations or their antigenic fragments thereof for vaccine development.
>
> Accordingly, in view of the teachings of Paoletti et al., it would have been obvious for one of ordinary skill in the art...to modify the plasmid technology of Gonczol by use of a gcII or gcIII plasmid to induce a neutralizing antibody response.

Applicants respectfully traverse the rejection. The claims are directed to compositions including nucleic acid molecules encoding multiple CMV polypeptides, wherein the nucleic acid molecules comprise DNA plasmids. Both claim 1 and claim 7 require that the nucleic acid molecules include sequences encoding a gcII polypeptide (e.g., gM, gN, or an antigenic fragment

[2] Claims 2, 4, 5, 9, 10, 12, and 19 have been canceled.

thereof). As noted in the Office Action, the '389 patent does not disclose gcII polypeptides or plasmids that encode them. Applicants disagree that the '965 patent provides any motivation to make or use nucleic acids that encode the combinations of antigens recited in the present claims. The '965 patent describes attenuated recombinant pox viruses encoding HCMV proteins for use in vaccination and therapy (abstract). The '965 patent describes numerous viral vectors for expressing HCMV antigens. Nowhere does the '965 patent disclose or suggest a vector for expression of a gcII protein. For example, the '965 patent states, "[t]his invention pertains to NYVAC, ALVAC and vaccinia (WR strain) recombinants containing the HCMV genes encoding for gB, gH, gL, pp150, pp65 and IE 1, including truncated versions thereof, which are further described in the Examples below" (col. 18, lines 56-60). Notably, gcII glycoproteins are absent from the lists of HCMV antigens that the '965 patent discloses for use in prophylactic and therapeutic applications.

The '965 patent mentions HCMV gcII glycoproteins in two places, both in the Background section: at column 6, lines 45-52, and column 7, lines 15-22. The Background notes that "[n]eutralization of HCMV has been demonstrated in vitro with antibodies specific for each of these [gcI, gcII, and gcIII] glycoprotein families," and that gcII glycoproteins are recognized in sera from convalescent adults (the '965 patent, column 6, lines 49-51, and column 7, lines 17-18). These passages do not suggest that one use a nucleic acid molecule expressing a gcII protein in combination with a nucleic acid molecule expressing gB. The reference merely notes that gcII "**may** be important" for immunity (column 7, lines 21-22, emphasis added) and that "the role of individual HCMV proteins in protective immunity is **unclear**" (column 6, lines 45-46, emphasis added). The fact that the '965 patent discusses gcII antigens in the Background, yet fails to explicitly suggest their use in any of the many applications set forth for other HCMV sequences in the Description and Examples, would not direct one to arrive at applicants' present claims.

For at least the foregoing reasons, applicants respectfully request withdrawal of this rejection.

CONCLUSION

Applicants submit that the claims are in condition for allowance and such action is requested. A Petition for Extension of Time and required fee are being filed herewith. Please apply any other charges or credits to deposit account 06-1050, referencing attorney docket no. 07917-190001.

Respectfully submitted,

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